

**Texas State Soil and Water Conservation Board
State Nonpoint Source Grant Program
FY 2019 Workplan 19-54**

SUMMARY PAGE			
Title of Project	Continuation of Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan		
Project Goals	<ul style="list-style-type: none"> Generate data of known and acceptable quality for surface water quality monitoring of the mainstem and select tributaries on the Lampasas River. Support the implementation of the Lampasas River WPP by collecting water quality data for use in evaluating the effectiveness of BMPs and assessing water quality improvement. Communicate water quality conditions to the public and the Lampasas River Watershed Partnership Steering Committee in order to support adaptive management of the Lampasas River WPP and to expand public knowledge of Lampasas river water quality data. 		
Project Tasks	(1) Project Administration; (2) Quality Assurance; (3) Water Quality Data Collection and Analysis; (4) Stakeholder Communication		
Measures of Success	<ul style="list-style-type: none"> Data of known and acceptable quality are generated for surface water quality monitoring of mainstem and tributary stations in the Lampasas River watershed Water quality data is communicated to the public and the Partnership Increased watershed stewardship among Lampasas River watershed stakeholders 		
Project Type	Implementation (X); Education (X); Planning (); Assessment (); Groundwater ()		
Status of Waterbody on 2014 Texas Integrated Report	Segment ID 1217D North Rocky Creek (unclassified water body)	Parameter of Impairment or Concern Depressed dissolved oxygen	Category 5c
Project Location (Statewide or Watershed and County)	Lampasas River Watershed in Bell, Burnet, Coryell, Hamilton, Lampasas, Mills, and Williamson Counties		
Key Project Activities	Hire Staff (); Surface Water Quality Monitoring (X); Technical Assistance (); Education (); Implementation (); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other ()		
2017 Texas NPS Management Program Reference	<ul style="list-style-type: none"> Component 1 LTGs 1, 2, 3, 7 Component 1 STGs 1B, 1E, 3A, 3F Component 2 		
Project Costs	\$147,672		
Project Management	Texas A&M AgriLife Research		
Project Period	April 1, 2019 – February 28, 2021		

Part I – Applicant Information

Applicant							
Project Lead		Raghavan Srinivasan, Ph.D.					
Title		Professor					
Organization		Texas A&M AgriLife Research – Blackland Research and Extension Center					
E-mail Address		r-srinivasan@tamu.edu					
Street Address		720 E. Blackland Rd.					
City	Temple	County	Bell	State	Texas	Zip Code	76502
Telephone Number		(979) 845-5069			Fax Number		(979) 862-2607

Project Partners	
Names	Roles & Responsibilities
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities and ensure coordination of activities with related projects and TCEQ.
Texas A&M AgriLife Research – Blackland Research and Extension Center (AgriLife Research)	Provide project administration and reporting, coordination, data and analysis review, assistance for stakeholder relations, and technology transfer to the Lampasas River Watershed Partnership. Develop project final report.
Texas Institute for Applied Environmental Research (TIAER)	Provide water quality sampling and analysis for testing sites. Assist in coordinating water quality sampling efforts. Provide QAPP development and support.
Lampasas River Watershed Partnership (Partnership)	Collaborate as critical local stakeholders and play a lead role in communicating with other local stakeholders.

Part II – Project Information

Project Type					
Surface Water	X	Groundwater			
Does the project implement recommendations made in (a) a completed WPP, (b) an adopted TMDL, (c) an approved I-Plan, (d) a Comprehensive Conservation and Management Plan developed under CWA §320, (e) the <i>Texas Coastal NPS Pollution Control Program</i> , or (f) the <i>Texas Groundwater Protection Strategy</i> ?				Yes	X
If yes, identify the document.				Lampasas River Watershed Protection Plan	
If yes, identify the agency/group that developed and/or approved the document.		The Lampasas River Watershed Partnership facilitated by Texas A&M AgriLife Research and TSSWCB		Year Developed	2013

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2012 IR	Size (Acres)
Lampasas River (Lampasas River above Stillhouse Hollow Lake, Rocky Creek, Sulphur Creek, Simms Creek)	120702030101 – 120702030509	1217 1217D 1217B 1217C	2 5c 5b 2	839,800

Water Quality Impairment
Describe all known causes (i.e., pollutants of concern) and sources (e.g., agricultural, silvicultural) of water quality impairments or concerns from any of the following sources: <i>2014 Texas Integrated Report</i> , Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.
<p>2014 Integrated Report North Rocky Creek (1217D) is listed as impaired for depressed DO. Parameters of Concern: 1217B_02: Sulphur Creek; Dissolved Oxygen Grab; CS 1217D_01: North Rocky Creek; Dissolved Oxygen 24 hr average and 24 hr minimum; NS 1217G_01: Clear Creek; Nitrate; CS</p> <p>2017 BRA CRP Basin Summary Report Only one segment, unclassified waterbody 1217D, North Rocky Creek is impaired in the Lampasas River Watershed. In the 2014 IR, 1217D is impaired for depressed dissolved oxygen. This DO impairment is caused by frequent low water levels which hinder its ability to buffer against high ambient air temperatures in the summer and fall reducing the water's capacity to maintain DO levels. Biological data collected indicated that North Rocky Creek supports a relatively healthy biological community even with depressed DO levels. Sulphur Creek, 1217B has a concern for depressed dissolved oxygen. Low dissolved oxygen is likely a result of anoxic groundwater influx from the many springs that feed in to the stream. There are also concerns for nutrients in Clear Creek 1217G, however there is no increasing long-term trend.</p> <p>Draft 2016 Integrated Report Sulphur Creek (Segment 1217B) has been identified on the as failing to meet standards for Contact Recreation I and assigned to Category 5c.</p>

Project Narrative

Problem/Need Statement

The Lampasas River (segment 1217) rises in eastern Mills County, 16 miles west of Hamilton and flows southeast for 75 miles. The river courses through Hamilton, Lampasas, Burnet and Bell Counties. In Bell County the river turns northeast and is dammed five miles southwest of Belton to form Stillhouse Hollow Lake (Segment 1216). Below Stillhouse Hollow Lake, the Lampasas River flows to its confluence with Salado Creek and the Leon River to form the Little River.

According to the 2002 through 2008 Texas Water Quality Inventory and 303(d) List, the Lampasas River above Stillhouse Hollow Lake is impaired by elevated bacteria concentrations and did not meet Texas Surface Water Quality Standards for contact recreation. However, the Lampasas River was removed from the 2010 Integrated Report and subsequent reports. The river was delisted because no additional data had been collected for assessment between 2000 and late 2009 and the historical data no longer met the criteria to be used in assessment.

Prior to the river's delistment, Texas A&M AgriLife Research and TSSWCB established the Lampasas River Watershed Partnership in November 2009 as part of TSSWCB project 07-11, Lampasas River Watershed Assessment and Protection Project. This project updated land use, modeled water quality, and developed a WPP to address the bacteria impairment. With technical assistance from Texas A&M AgriLife Research and other state and federal partners, the Steering Committee identified water quality issues that are of particular importance to the surrounding communities. The WPP identified responsible parties, implementation milestones and estimated financial costs for individual management measures and outreach and education activities. The plan also described the estimated load reductions expected from full implementation of all management measures.

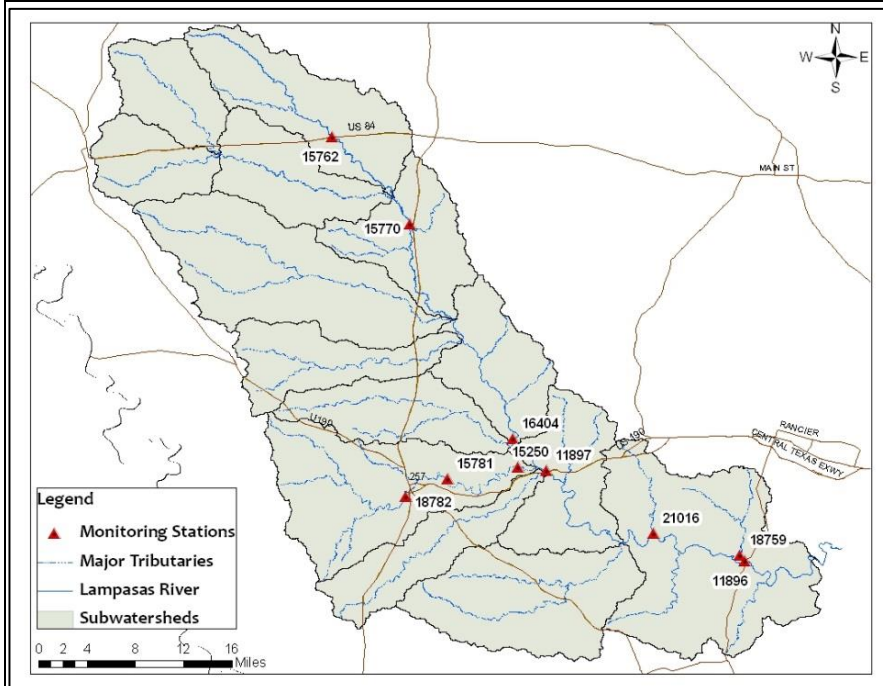
TSSWCB project 12-09, *Coordinating Implementation of the Lampasas River Watershed Protection Plan* and project 14-07, *Continued Coordinating Implementation of the Lampasas River Watershed Protection Plan*, and 17-05 *Continued Coordination and Implementation of the Lampasas River Watershed Protection Plan*, continue facilitation of the Lampasas River WPP. The WPP was accepted by EPA in May 2013 as being consistent with national guidance and was approved by the Steering Committee in September 2013 and may be found on the project webpage at <http://www.lampasasriver.org>. The timeline for full implementation of all the management measures in the Lampasas River WPP is 10 years.

In addition to the TSSWCB projects identified above, several other programs are being implemented in the watershed. Many other TSSWCB and TCEQ projects and programs have been implemented within the watershed to address NPS pollution from feral hogs, on-site sewer systems and technical and financial assistance for landowners to develop and implement Water Quality Management Plans. In order to monitor water quality response to the implementation efforts within the watershed, AgriLife Research and TIAER collaborated on TSSWCB project 13-09, *Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan* to collect monthly water quality data at ten sites to be utilized in evaluating the effectiveness of BMPs in the watershed. Project 13-09 collected monthly routine samples and quarterly flow biased samples from July 2014 through June 2016. A subsequent and ongoing collaboration in TSSWCB project 16-06 *Continuation of Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan* began sample collection on the same ten sites in June 2017. The sample regime from 13-09 was utilized, although project partners added in the collection of five 24-hour dissolved oxygen samples in year two of sampling. TSSWCB 16-06 will conclude its sampling program in July 2018.

This proposed project will provide continued support to collect surface water quality data within the watershed once sampling has ended in project 16-06 and will allow for a continuous dataset with no gaps. A robust data set will allow for more accurate assessment of the implementation activities within the watershed.

Project Narrative

General Project Description (Include Project Location Map)



TIAER will conduct routine ambient monitoring at 10 sites monthly collecting field, conventional, flow and bacteria parameter groups. The 10 sites have already been identified by the Partnership as shown in Table 1 and Figure 1. The sampling period will extend for at least 14 months with 140 routine samples budgeted. Spatial and seasonal variations will be captured across the sampling period.

TIAER will attempt to conduct biased flow monitoring (weather permitting) at the 10 sites listed in Table 1 once per quarter/season under wet weather conditions, collecting field, conventional, flow and bacteria parameter groups. If due to dry weather conditions, a wet-weather sample is not collected in a given quarter, an attempt will be made to collect a missed wet-weather event in future quarters. If a routine sampling event happens to capture wet weather

Figure 1 Map of water quality monitoring stations recommended by the Lampasas River Watershed Partnership to evaluate the effectiveness of BMP implementation.

conditions, this event may be considered the wet-weather event for a given quarter. It is expected that no more than 40 biased flow samples will be collected over 4 quarters/seasons. Spatial, seasonal and meteorological variation will be captured across the sampling period. TIAER will also conduct five 24-hour dissolved oxygen (DO) sampling events on North Rocky Creek (segment 1217D) at station 18334. The 24-hour DO samples will be collected following TCEQ Surface Water Quality Monitoring guidelines.

All monitoring data will be provided to AgriLife and submitted by TIAER to TCEQ for upload into the TCEQ SWQMIS for future water quality assessments. AgriLife Research will develop a final report that includes an assessment of water quality with respect to effectiveness of BMPs implemented, short-term progress made in achieving water quality goals stated in the WPP as well as statistical analysis to identify any trends within the dataset. AgriLife Research will communicate water quality conditions to the public and the Partnership Steering Committee in order to support adaptive management of the Lampasas River WPP and to expand public knowledge on Lampasas River water quality data.

TCEQ ID	Location	Lat	Long
15762	LAMPASAS RIVER AT US 84	31.48027	-98.2735
15770	LAMPASAS RIVER AT CR2925	31.119	-98.0565
16404	LAMPASAS RIVER AT FM 2313	30.97248	-97.7786
11897	LAMPASAS RIVER AT US 190	31.08167	-98.0164
11896	LAMPASAS RIVER AT HWY 195	30.95297	-97.7212
18782	SULPHUR CREEK AT NARUNA ROAD	31.0504	-98.1852
18781	SULPHUR CREEK AT CR 3010	31.07091	-98.1353
15250	SULPHUR CREEK AT CR 3050	31.0854	-98.0507
21016	CLEAR CREEK AT OKALLA ROAD	31.0063	-98.8887
18759	REESE CREEK NR FM 2670 BR985	30.9793	-97.7847

Tasks, Objectives and Schedules				
Task 1	Project Administration			
Costs	\$28,058			
Objective	To effectively administer, coordinate and monitor all work performed under this project including technical and financial supervision and preparation of status reports.			
Subtask 1.1	AgriLife Research will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15 th of December, March, June, and September. QPRs shall be distributed to all Project Partners.			
	Start Date	Month 1	Completion Date	Month 23
Subtask 1.2	AgriLife Research will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.			
	Start Date	Month 1	Completion Date	Month 23
Subtask 1.3	AgriLife Research will host coordination meetings or conference calls, at least quarterly, with Project Partners to discuss project activities, project schedule, communication needs, deliverables, and other requirements. AgriLife Research will develop lists of action items needed following each project coordination meeting and distribute to project personnel.			
	Start Date	Month 1	Completion Date	Month 23
Subtask 1.4	AgriLife Research will develop a Final Report that summarizes activities completed and conclusions reached during the project and discusses the extent to which project goals and measures of success have been achieved.			
	Start Date	Month 19	Completion Date	Month 23
Deliverables	<ul style="list-style-type: none"> QPRs in electronic format Reimbursement Forms and necessary documentation in hard copy format Final Report in electronic and hard copy formats 			

Tasks, Objectives and Schedules				
Task 2	Quality Assurance			
Costs	\$4,430			
Objective	To develop data quality objectives (DQOs) and quality assurance/control (QA/QC) activities to ensure data of known and acceptable quality are generated through this project.			
Subtask 2.1	TIAER will develop a QAPP for activities in Task 3 consistent with the most recent versions of <i>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</i> and the <i>TSSWCB Environmental Data Quality Management Plan</i> . All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the <i>TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)</i> and <i>Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416)</i> . [Consistency with Title 30, Chapter 25 of the Texas Administrative Code, <i>Environmental Testing Laboratory Accreditation and Certification</i> , which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference (NELAC) standards, shall be required where applicable.]			
	Start Date	Month 1	Completion Date	Month 4
Subtask 2.2	TIAER will implement the approved QAPP. TIAER will submit revisions and necessary amendments to the QAPP as needed.			
	Start Date	Month 5	Completion Date	Month 23
Deliverables	<ul style="list-style-type: none"> QAPP approved by TSSWCB in both electronic and hard copy formats Approved revisions and amendments to QAPP, as needed Data of known and acceptable quality as reported through Task 3 			

Tasks, Objectives and Schedules				
Task 3	Water Quality Data Collection and Analysis			
Costs	\$88,603			
Objective	To provide data of known and acceptable quality for surface water quality monitoring of mainstem and tributary stations of the Lampasas River.			
Subtask 3.1	<p>TIAER will conduct routine ambient monitoring at 10 sites monthly collecting field, conventional, flow and bacteria parameter groups. The 10 sites have been identified by the Partnership (Table 1).</p> <p>Sampling period extends over 14 months. Total number of samples scheduled for collection through this subtask is 140. Spatial and seasonal variation will be captured across the sampling period. Six of the monitoring sites are currently monitored quarterly by either TCEQ or BRA through the Clean Rivers Program. TIAER will coordinate with these entities so as not to duplicate sampling dates.</p> <p>TIAER's Laboratory will maintain NELAC accreditation and conduct sample analyses. Field parameters are pH, temperature, dissolved oxygen and specific conductance. Conventional parameters are total suspended solids, nitrate + nitrite nitrogen, total kjeldahl nitrogen, chlorophyll-a, pheophytin and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. <i>E. coli</i> enumeration will be done using USEPA Method 1603.</p>			
	Start Date	Month 5	Completion Date	Month 18
Subtask 3.2	<p>TIAER will attempt to conduct biased-flow monitoring at 10 sites (Table 1) once per quarter/season under wet weather conditions, collecting field, conventional (with the exception of chlorophyll-a and pheophytin), flow and bacteria parameter groups. These sites shall be the same as the sites for routine ambient monitoring described in Subtask 3.1. If due to dry weather conditions, a wet-weather sample is not collected in a given quarter, an attempt will be made to collect a missed wet-weather event in future quarters. If a routine sampling event under subtask 3.1 happens to capture wet weather conditions, this event may be considered the wet-weather event for a given quarter. Parameters are the same as defined in subtask 3.1, except chlorophyll-a and pheophytin will not be included with storm samples that are specifically collected to represent wet-weather conditions under subtask 3.2 due to interference issues with high sediment concentrations often associated with these samples.</p> <p>The sampling period extends through 4 quarters/seasons. The number of samples planned for collection through this subtask is 40. Spatial, seasonal and meteorological variation will be captured across the sampling period.</p> <p>Samples will be analyzed at TIAER's Laboratory.</p>			
	Start Date	Month 5	Completion Date	Month 18
Subtask 3.3	<p>TIAER will conduct five 24-hour dissolved oxygen (DO) sampling events on North Rocky Creek (segment 1217D) at station 18334. The 24-hour DO samples will be collected in conjunction with routine samples collected in Task 3.1. The specific timing of the sampling events will be done per the guidelines found in Chapter 3 of the Surface Water Quality Monitoring Procedures, Vol. 1 (revised August 2012) or more recent updates.</p>			
	Start Date	Month 5	Completion Date	Month 20
Subtask 3.4	<p>Monitoring data from activities in subtasks 3.1-3.3 will be submitted by TIAER for upload into the TCEQ SWQMIS at least quarterly. Data will be transferred in the correct format using the TCEQ file structure along with a completed Data Summary, as described in the most recent version of the TCEQ Surface Water Quality Monitoring Data Management Reference Guide. TIAER will submit Station Location Requests to TCEQ, as needed, to obtain TCEQ station numbers for new monitoring sites. Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported. All monitoring data files, data summary reports and data correction request forms will also be provided to AgriLife Research. TIAER will input monitoring regime, as detailed in the QAPP, into the TCEQ CMS.</p>			

	Start Date	Month 6	Completion Date	Month 23
Deliverables	<ul style="list-style-type: none"> Station Location Request Forms (as needed) in electronic format Monitoring data files and Data Summary in electronic format Data correction request forms (as needed) in electronic format 			

Tasks, Objectives and Schedules				
Task 4	Stakeholder Communication			
Costs	\$26,581			
Objective	To keep the Lampasas River Watershed Partnership and other stakeholders apprised of changes and trends in water quality.			
Subtask 4.1	AgriLife Research will prepare presentations as needed and disseminate to the Partnership to provide updates in changes in water quality.			
	Start Date	Month 1	Completion Date	Month 23
Subtask 4.2	AgriLife Research will summarize the results from Task 3 to be included in the BRA's Clean Rivers Program Basin Highlights Report and Basin Summary Report. AgriLife Research will provide updates on the results and activities of Task 3 to the Steering Committee.			
	Start Date	Month 1	Completion Date	Month 23
Subtask 4.3	AgriLife Research will summarize water quality data collected in subtasks 3.1 and 3.2 and conduct statistical and trend analysis which will be included in the Report developed in subtask 1.4.			
	Start Date	Month 1	Completion Date	Month 23
Deliverables	<ul style="list-style-type: none"> Presentation materials Summary of findings from monitoring activities included in BRA CRP BHR and BSR in both electronic and hardcopy formats 			

Project Goals (Expand from Summary Page)
<ul style="list-style-type: none"> Generate data of known and acceptable quality for surface water quality monitoring (routine ambient, targeted ambient) of mainstem and tributary stations for field and conventional parameters, flow, and bacteria Support the implementation of the Lampasas River WPP by collecting water quality data for use in evaluating the effectiveness of BMPs and in assessing water quality improvement Communicate water quality conditions to the public and to the Partnership on project results and activities in order to support adaptive management of the Lampasas River WPP and to expand public knowledge on Lampasas River water quality data

Measures of Success (Expand from Summary Page)
<ul style="list-style-type: none"> Data of known and acceptable quality are generated for surface water quality monitoring of main stem and tributary stations on Lampasas River for field and conventional parameters, flow, and bacteria Water quality data is used to evaluate progress in implementing the Lampasas River WPP Monitoring data is appropriately managed and transferred for inclusion into the TCEQ SWQMIS Water quality data is communicated to the public and the Partnership in a timely fashion

EPA State Categorical Program Grants – Workplan Essential Elements FY 2014-2018 EPA Strategic Plan Reference
Strategic Plan Goal – Goal 2 Protecting America’s Waters
Strategic Plan Objective – Objective 2.2 Protect and Restore Watersheds and Aquatic Ecosystems

2017 Texas NPS Management Program Reference (Expand from Summary Page)
Components, Goals, and Objectives
Component 1 - Explicit short- and long-term goals, objectives, and strategies to restore and protect surface and groundwater, as appropriate.
Long Term Goal - Protect and restore water quality affected by nonpoint source pollution through assessment, implementation, and education.
Objective 2 - Support the implementation of state, regional, and local programs to prevent nonpoint source pollution through assessment, implementation, and education.
Objective 3 - Support the implementation of state, regional, and local programs to reduce nonpoint source pollution, such as the implementation of strategies defined in TMDL I-Plans, WPPs, and other water quality planning efforts in the state.
Objective 7 - Increase overall public awareness of nonpoint source issues and prevention activities
Short Term Goals – Goal 1: Coordinate with appropriate federal, state, regional, and local entities, and stakeholder groups to target water quality assessment activities in high priority, nonpoint source-impacted watersheds, vulnerable and impacted aquifers, or areas where additional information is needed.
Objective B - Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved TCEQ or TSSWCB Quality Management Plans.
Objective E - Conduct monitoring to determine the effectiveness of TMDL I-Plans, WPPs, and BMP implementation.
Short Term Goals – Goal 2: Implement TMDL I-Plans and/or WPPs and other state, regional, and local plans/programs to reduce nonpoint source pollution by targeting implementation activities to the areas identified as impacted or potentially degraded by nonpoint source pollution with respect to use criteria.
Objective D - Implement TMDL I-Plans, WPPs, and other state, regional, and local plans developed to restore and maintain water quality in water bodies identified as impacted by nonpoint source pollution.
Short Term Goals – Goal 3: Conduct education and technology transfer activities to increase awareness of nonpoint source pollution and activities which contribute to the degradation of water bodies, including aquifers, by nonpoint source pollution.
Objective A - Enhance existing outreach programs at the state, regional, and local levels to maximize the effectiveness of nonpoint source education.
Objective D - Conduct outreach through the CRP, SWCDs, and others to enable stakeholders and the public to participate in decision-making and provide a more complete understanding of water quality issues and how they relate to each citizen.
Component 2 - Working partnerships and linkages to appropriate state, interstate, tribal, regional, and local entities, private sector groups, and federal agencies.

Part III – Financial Information

Budget Summary	
Category	Total
Personnel	\$ 34,379
Fringe Benefits	\$ 7,917
Travel	\$ 927
Equipment	\$ 0
Supplies	\$ 0
Contractual	\$ 93,066
Construction	\$ 0
Other	\$ 1,000
Total Direct Costs	\$ 137,289
Indirect Costs ($\leq 15\%$)	\$ 10,383
Total Project Costs	\$ 147,672

Budget Justification - AgriLife		
Category	Total Amount	Justification
Personnel	\$ 34,379	Principal Investigator (annual base salary \$200,000; 0.75 months) Senior Research Associate (annual salary \$56,000; 2 months) Data Analyst (annual salary \$45,620; 3.3 months) *Salary estimates are based on average monthly percent effort for the entire contract. Actual percent effort may vary more or less than estimated between months; but in the aggregate, will not exceed total effort estimates for the entire project.
Fringe Benefits	\$ 7,917	Fringe benefits are calculated at a rate of 23.03% of salary to cover FICA, UCI, WCI, and retirement and group medical insurance.
Travel	\$ 927	Travel from Temple to the Lampasas River Watershed, Stephenville, College Station, and Waco (average 176 miles roundtrip) for stakeholder engagement, project planning and coordination meetings and to participate in the BRA CRP meetings. Estimate approximately 5 trips annually.*All travel will be reimbursed at @ current state mileage rate for the state of Texas
Equipment	\$ 0	N/A
Supplies	\$ 0	
Contractual*	\$ 93,066	Texas Institute of Applied Environmental Research (TIAER)
Construction	\$ 0	N/A
Other	\$ 1,000	Shipping/postage, professional printing of fact sheets or reports, training registration fees, computer equipment
Indirect	\$ 10,383	15% of Modified Total Direct Costs

Contractual Budget Justification –TIAER		
Category	Total Amount	Justification
Personnel	\$ 33,020	See personnel table below for details.
Fringe Benefits	\$ 9,019	Approximately 27% of salaries (see below for more details)
Travel	\$ 1,740	All travel assumes use of TIAER vehicles with fuel expenses: <ul style="list-style-type: none"> Trips by TIAER field staff to and from sampling sites for sample retrieval, flow measurements, and deployment and retrieval of sondes for 24-hr measurements (estimated 25 trips to sampling sites, about 250 miles per trip) and 1 trip to Temple for project management. These 25 sampling trips represent 14 monthly sampling events, 4 biased-flow sampling events, 5 trips for DO probe retrieval and 2 extra trips for contingency issues.
Equipment	\$ 0	N/A
Supplies	\$ 865	Field supplies, such as pH solution and replacement pH probes.
Contractual	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 41,565	Lab analyses for samples (total \$40,495) and other items such as vehicle maintenance (\$970) and miscellaneous charges postage and shipping (\$100). More details provided below.
Indirect	\$ 6,857	Indirect charged 15% of MTDC = \$45,714. MTDC=Total direct (\$86,209) minus cost of lab analyses of samples (\$40,495).

Detailed Budget Justification of TIAER Personnel & Fringe:

Staff Name or Vacant	Project Role	Salary FY19	Est. % Time FY19	Est. % Time FY20	Est. % Time FY21	Total Cost to Project
Fulltime Employees						
Stroebe, Jeff	Project Manager, QAPP development, Field Operations & Data Submittals	\$67,829	3%	10%	2%	\$10,460
Millican, Jimmy	Field Operations	\$66,455	1%	6.5%	1%	\$5,993
Blankenship, David	Field Operations, Data Entry & Review	\$40,180	1%	8%	1%	\$4,139
Hunter, James	Laboratory Review for QAPP, Field Operations & Laboratory Manager	\$57,339	1%	6.5%	1%	\$5,020
Hunt, Vickie	Lab Technician	\$37,677	<0.5%	1.5%	<0.5%	\$691
Estimated Time for Hourly Employees						
Easterling, Nancy	Project QAO and Data Submittals	\$29.41/hr	40 hrs	120 hrs	27 hrs	\$5,499
Rogers, Jim (James)	Data Submittals	\$31.73/hr	4 hrs	16 hrs	8 hrs	\$889
Murphy, Mark	Laboratory QAO	\$41.09/hr	8 hrs	0	0	\$329
	* Budget assumes a salary increase of 3% per fiscal year. Salary includes base salary plus longevity.			Salary		\$33,020
		** Percent time represents an average for the 22 months and will vary based on when work for tasks and subtasks occurs.				

Fringe Uses Approved Rates

Fringe estimated at 16.8% times salary costs plus insurance rate of \$747/month (actual fringe may vary by month based on individuals involved in the project).

Detailed Justification for Other:

Lab Analysis – For monitoring under Task 3, the budget includes 140 routine grab for conventional parameters of *E. coli*, CHLA and pheophytin, NO₂-N+NO₃-N, TKN, TP and TSS (estimated cost per sample \$237) and 40 biased-flow samples of *E. coli*, NO₂-N+NO₃-N, TKN, TP and TSS (estimated cost per sample \$183). CHLA and pheophytin will not be analyzed with samples for events that specifically target wet-weather conditions under Task 3.2, but will be included with all routine analyses under Task 3.1. *E. coli* will be analyzed per EPA method 1603. Other laboratory costs that may be charged to the project include data review, bottle preparation for sampling and extra filtration (as needed for “dirty” samples).

Vehicle maintenance – TIAER maintains its own fleet of vehicles. A portion of the total budget (about 15 cents/mile) is estimated for maintenance items, such as oil changes.